

C. Remarks

Claims are 1-11, 13 and 14 with claims 1 and 14 being independent. Claim 12 has been cancelled without prejudice or disclaimer. Claim 1 has been amended to clarify the invention. Support for this amendment may be found, *inter alia*, in cancelled claim 12, as well as in Fig. 2 and the corresponding disclosure in the specification at paragraph [0030]. Claims 2-4 and 10 have been amended to reflect the changes made in claim 1. New claims 13 and 14 have been added. Support for claim 13 may be found, for example, in the specification at paragraph [0021]. Support for new claim 14 may be found at paragraph [0031] and in Fig. 2. No new matter has been added. Reconsideration of the present claims is expressly requested.

Claims 1-12 stand rejected under 35 U.S.C. § 112, second paragraph, as being allegedly indefinite.

While Applicants disagree with the Examiner regarding the issues raised with respect to claim 1, the above amendment makes these issues moot. The antecedent basis for the phrase in claim 7 may be found in claim 1, line 1. Specifically, the term “pollutant” may be found in the preamble of claim 1.

Wherefore, Applicants respectfully request that the indefiniteness rejections be withdrawn.

Claims 1-12 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious from U.S. Patent No. 4,402,836 (Fochtman) in view of U.S. Patent No. 4,196,140 (Lynch). The grounds of rejection are respectfully traversed.

Prior to addressing the merits of rejection, Applicants would like to discuss some of the features and advantages of the presently claimed invention. That invention is

related to a method for decomposing a pollutant using chlorine gas and light irradiation. Specifically, a chlorine-generating solution is supplied from a cell to a first container in which chlorine gas is generated. This chlorine gas generated in a first container is mixed with a gaseous pollutant, and the mixed gas is irradiated with light in the second container, which is provided apart from the first container. The chlorine-generating solution from which chlorine gas is generated for decomposition is returned to the cell and is reused.

As mentioned above, in accordance with the presently claimed method, the container in which chlorine gas is generated and the container in which irradiation takes place are separated. This is done to avoid the decomposition product from dissolving in the chlorine-generating solution, which can occur if the chlorine gas generation and light irradiation are conducted in the same container (see Fig. 1). If the decomposition product is allowed to dissolve in the chlorine-generating solution, this solution would either need to be discarded or further decontaminated in order to be re-circulated and reused.

In contrast, when the first container and the second container are separately provided as claimed, the decomposing product may adhere to an inner wall of the second container (e.g., treatment tank 101 in Fig. 2) or the decomposing product may be in the form of a mist that can be evacuated together with the treated gas from an exhaust port at an upper part of the second container. Therefore, the likelihood that the decomposing product dissolves in the chlorine-generating solution can be reduced, thereby minimizing the need to clean the chlorine-generating solution and increasing the decomposition treatment efficiency.

Fochtman is directed to a method for treating hydrazine-fuel contaminated wastewater via an ultraviolet-induced chlorination treatment of wastewater. As the Examiner has acknowledged, Fochtman does not teach generating chlorine gas used for the treatment process from a solution. However, the Examiner has alleged that Lynch teaches such chlorine generation and that it would have been obvious to generate chlorine in Fochtman via a method disclosed in Lynch.

Applicants respectfully submit that even if Lynch contains the alleged teaching of generating chlorine from a solution, this teaching is not sufficient to modify Fochtman to render the presently claimed invention unpatentable. Specifically, the presently claimed invention is not merely concerned with using a solution to generate chlorine, which is then employed for decomposition of pollutants. As recited in claim 1, the chlorine-generating solution is returned from to the cell in the flowing step and is reused. Applicants respectfully submit that Lynch fails to disclose or suggest the presently claimed re-circulation of the chlorine-generating solution.

Also, Lynch does not disclose separating the container in which chlorine is generated from the container in which irradiation takes place. At most, Lynch teaches how to generate chlorine from a chemical waste stream. Thus, even if the teaching in Fochtman and Lynch are combined, this combination still lacks the flowing step as presently claimed, as well as the separation of the containers.

Claims 1-12 stand rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-8 of U.S. Patent No. 7,018,514 B2 (the '514 patent) and over claims 1-49 of U.S. Patent No. 6,538,170 B2 (the '170 patent). The grounds of rejection are respectfully traversed.

Applicants respectfully submit that neither of these patents recites the flowing step as presently claimed. Specifically, the claims in the '514 patent do not recite flowing the chlorine-generating solution, from which chlorine gas is generated for decomposition, from a container to the cell so that this solution can be reused, but recite reusing chlorine itself. The claims in the '170 patent do not recite flowing the chlorine-generating solution from a container to the cell so that it can be reused.

In conclusion, Applicants respectfully submit that all of the presently claimed elements are not disclosed or suggested by the prior art.

Wherefore, in view of the foregoing amendments and remarks, favorable reconsideration and passage to issue of the present case is respectfully requested. Should the Examiner believe that issues remain outstanding, the Examiner is respectfully requested to contact Applicants' undersigned attorney in an effort to resolve such issues and advance the case to issue.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

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